

WHAT IS CLAIMED IS:

1. A data recording method for recording data on a rewritable recording medium, comprising the steps of:

converting writing data to be written to the recording medium into data different from data already recorded in the same position on the recording medium; and

recording data on a rewritable recording medium.

2. A data recording method for recording data on a rewritable recording medium, comprising the steps of:

data-converting data to be recorded on the recording medium by superposing thereon information generated on the basis of data conversion information; and

recording the data conversion information and the data-converted data on the recording medium.

3. A data recording method according to claim 2, wherein said data conversion information is an initial value which is changed every recording.

4. A data recording method according to claim 3, wherein said initial value generates a pseudo-random number.

5. A data recording method according to claim 2, wherein additional information is embedded in a part of said data conversion information.

6. A data recording method according to claim 5, wherein in case a part of said data is rewritten, said additional information embedded in the data conversion information is made

the same as before the rewriting.

7. A data recording method according to claim 1, wherein said data-converted data is main data, identification data, error detection code, and error correction code.

8. A data recording method according to claim 2, wherein said data-converted data is recorded in the vicinity of the recording position in which said data conversion information is recorded on said recording medium.

9. A data recording method for recording data on a recording medium which can be rewritten multiple times, comprising the steps of:

ordering the signal processing of data to be recorded on the recording medium in response to a received recording instruction;

adding error correction data to the data in response to the order;

data-converting the data thus added to by superposing thereon information generated on the basis of data conversion information;

modulating the converted data thus data-converted and the data conversion information;

recording the data conversion information to the recording medium; and

recording the converted data to the vicinity of the recording position in which the data conversion information was

recorded.

10. A data recording method according to claim 9, wherein said data conversion information is an initial value which is changed every recording.

11. A data recording method according to claim 9, wherein additional information is embedded in a part of said data conversion information.

12. A data recording method according to claim 9, wherein said data-converted data is main data, identification data, error detection code, and error correction code.

13. A data reproducing method for reproducing from a recording medium, in which data conversion information and converted data data-converted by having superposed thereon information generated on the basis of the data conversion information are recorded, comprising the steps of:

reading the data conversion information;

generating information on the basis of the data conversion information;

restoring the converted data back to pre-conversion data of before the data-conversion, using the read data conversion information and the generated information; and

reproducing the pre-conversion data.

14. A data reproducing method according to claim 13, wherein said data conversion information is an initial value which is changed every recording.

15. A data reproducing method according to claim 13, wherein additional information is embedded in a part of said data conversion information.

16. A data reproducing method according to claim 15, further comprising the steps of detecting the additional information and controlling the reproduction of the pre-conversion data on the basis of the detection result.

17. A data reproducing method according to claim 16, wherein the detection is carried out a plurality of times and the reproduction of said pre-conversion data is controlled on the basis of those detection results.

18. A data reproducing method according to claim 17, wherein the detection is carried out for each of a plurality of pieces of additional information and the reproduction of said pre-conversion data is controlled on the basis of the results of detecting those pieces of additional information.

19. A data reproducing method according to claim 13, wherein said converted data is main data, identification data, error detection code, and error correction code.

20. A data recording apparatus for recording data on a rewritable recording medium, comprising:

a convertor for data-converting data to be recorded on the recording medium by superposing thereon information generated on the basis of data conversion information; and

a laser pickup for recording the data conversion

information and the data-converted data on the recording medium.

21. A data recording apparatus according to claim 20, wherein said convertor superposes on the writing data other data having no correlation with the writing data and thereby converts the writing data into different data every writing operation.

22. A data recording apparatus according to claim 20, wherein said information generated on the basis of the data conversion information is generated from an initial value inputted to a shift register and changed every recording.

23. A data recording apparatus according to claim 22, wherein said initial value generates a pseudo-random number.

24. A data recording apparatus according to claim 20, wherein additional information is embedded in a part of said data conversion information.

25. A data recording apparatus according to claim 24, wherein in case said data is rewritten in part, said additional information embedded in the data conversion information is made the same as before the rewriting.

26. A data recording apparatus according to claim 20, wherein said data-converted data is main data, identification data, error detection code, and error correction code.

27. A data recording apparatus for recording data on a recording medium which is rewritable multiple times, comprising:

a microprocessor for ordering the signal processing of

data to be recorded on the recording medium in response to a received recording instruction;

a signal-processing circuit for, in response to the order, adding error correction data to the data, data-converting the data thus added to by superposing thereon information generated on the basis of data conversion information, and modulating the converted data thus data-converted;

a laser generating source for generating a recording laser;

a laser pickup for irradiating the generated recording laser at the recording medium; and

a servo for controlling the laser pickup to record the data conversion information and the converted data.

28. A data recording apparatus according to claim 27, wherein said information generated on the basis of the data conversion information is generated from an initial value inputted to a shift register and changed every recording.

29. A data recording apparatus according to claim 27, wherein additional information is embedded in a part of said data conversion information.

30. A data recording apparatus according to claim 27, wherein said data-converted data is main data, identification data, error detection code, and error correction code.

31. A data reproducing apparatus for reproducing from a recording medium in which data conversion information and

converted data data-converted by having superposed thereon information generated on the basis of the data conversion information are recorded, comprising:

a laser pickup for reading the data conversion information and the converted data;

a signal-processing circuit for using the read data conversion information and the information generated on the basis of the data conversion information to restore the converted data back to pre-conversion data of before the data-conversion; and

reproducing apparatus for reproducing the pre-conversion data.

32. A data reproducing apparatus according to claim 31, wherein said data conversion information is an initial value changed every recording.

33. A data reproducing apparatus according to claim 31, wherein additional information is embedded in a part of said data conversion information.

34. A data reproducing apparatus according to claim 33, wherein said additional information is detected by a detector and the reproduction of the pre-conversion data is controlled on the basis of the detection result.

35. A data reproducing apparatus according to claim 34, wherein the detection is carried out a plurality of times and the reproduction of said pre-conversion data is controlled on

the basis of those detection results.

36. A data reproducing apparatus according to claim 35, wherein the detection is carried out for each of a plurality of pieces of additional information and the reproduction of said pre-conversion data is controlled on the basis of the results of detecting those pieces of additional information.

37. A data reproducing apparatus according to claim 31, wherein said converted data is main data, identification data, error detection code, and error correction code.

38. A data recording method for use with a rewritable recording medium, comprising the steps of:

comparing first data already recorded in a write position on the recording medium with second data to be newly written to the same write position, on data writing; and

writing the second data to the write position in case the result of the comparison is that the first data and the second data include different data.

39. A data recording method for use with a rewritable recording medium, wherein in case writing data of management information to be recorded to a position on the recording medium includes the same data as data already written in the same position on the recording medium, the writing data is not recorded with respect to the parts where the data is the same.

40. A data recording apparatus for recording data on a rewritable recording medium, wherein management information of



writing data to be recorded on the recording medium is temporarily stored in a separate memory and written to the recording medium when the recording medium is removed from the apparatus.

41. A data recording apparatus for recording data on a rewritable recording medium, comprising means for superposing known data on management information of writing data to be recorded to the recording medium, wherein it is recorded as different management information data on every recording operation.

42. A data recording apparatus for use with a rewritable recording medium, wherein on data writing first data already recorded in a writing position on the recording medium and second data to be newly written to the same writing position are compared and in case the first data and the second data include different data, the second data is written to the write position.

43. A data reproducing apparatus for reproducing data from a recording medium on which data converted to a predetermined format has been recorded, comprising output means for, in case a known data series is detected from data having undergone a reverse-conversion of the format, deeming the data series to be invalid data and not outputting it as reproduction data, and output means for outputting a flag indicating that the data is invalid.